

Oil money has driven most of the growth and paid for state government operations in Alaska for 40 years. We've all gotten used to that money, so it's easy to underestimate how much of the state's prosperity is built on oil. Think about this: without oil, the economy today would be only half the size.

But now times are changing. The North Slope is producing just a third the oil it once did—and there's a danger Alaskans will assume the state can keep going the way it is, without future oil development. Not true.

The economy is larger and more mature than it was before oil, but it hasn't moved beyond oil. Other industries will help drive future growth—and if North Slope natural gas goes into production, it will expand the economic base and create jobs. But gas won't replace oil: gas is not nearly as valuable as oil (see page 4).

Oil will still be the state's biggest economic engine in the years ahead. This paper describes the overall economic contributions of oil, and then discusses possible steps for Alaskans to take toward a strategy for the future—a strategy that protects Alaska but also takes advantage of oil development opportunities.

WHAT ARE SPINOFFS OF OIL WEALTH?

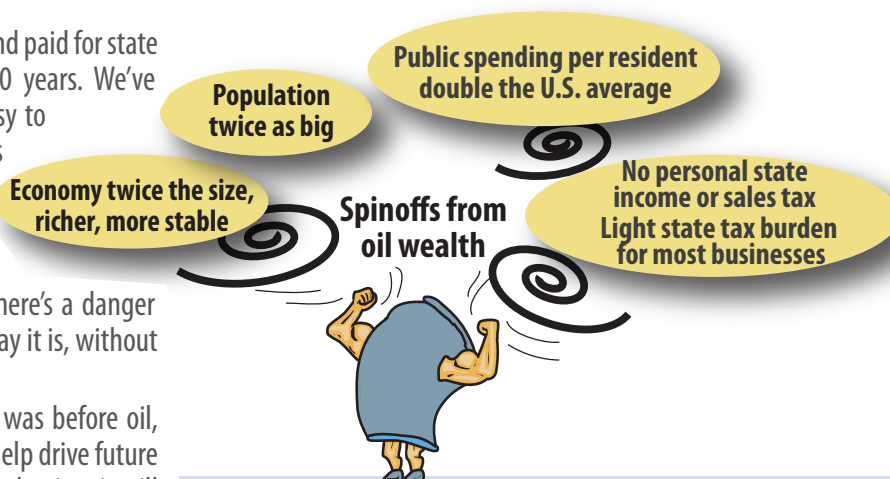
In an earlier publication, we estimated that a third of Alaska jobs—about 127,000 jobs in 2007—are oil-related: they depend in some way on oil production or state oil revenues.¹

But close to 20% more jobs—60,000 in 2007—can be traced to the “spinoff” benefits of oil wealth. These are broad economic benefits created both by oil industry activities and by state spending of its huge oil revenues—which so far total \$157 billion (adjusted for inflation). Specifically what are these oil-wealth spinoffs?

- An economy that's twice as big, as well as richer and more stable.
- A population that's twice the size, which creates economies of scale.
- State taxes that are the lowest in the country on households and many types of non-oil businesses.²
- State spending per person that is the highest in the nation.

These spinoffs have helped other parts of the economy prosper and add more jobs than they otherwise could have. Altogether, counting oil-related and spinoff jobs, half of Alaska's jobs can be traced in some way to oil development.³ That's 187,000 jobs in 2007 (Figure 1).

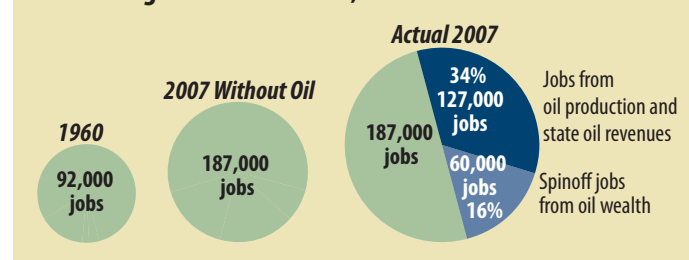
But the spinoff benefits go far beyond jobs: they extend to virtually all Alaska households, communities, and businesses. For example, a family of four enjoyed on average an estimated value of about



Who Benefits from Oil Spinoffs?

- **Households:** Estimated value for family of four: \$22,000 in 2010
- **Communities:** Local tax relief/more infrastructure/amenities
- **Other resource sectors:** Tax relief/lower business costs/more jobs
- **Local businesses:** Lower costs/stability/economies of scale

Figure 1. Alaska Jobs, With and Without Oil



\$22,000 in 2010—in tax relief, Permanent Fund dividends, and enhanced public services. Communities, industries, and local businesses enjoy tax relief, lower costs, economies of scale, better infrastructure, enhanced opportunities, and improved quality of life.

WHAT'S AHEAD?

We're doing well now: the big question is how to keep Alaska prosperous in the decades ahead.

There are known and estimated oil reserves that could benefit Alaska for generations to come. But the huge Prudhoe Bay field was a once-in-a-lifetime discovery. Future production will be much more technologically challenging and expensive—and less profitable for the state government. But new oil production is critical for the health of the economy. Alaskans need to understand that.

BACKGROUND

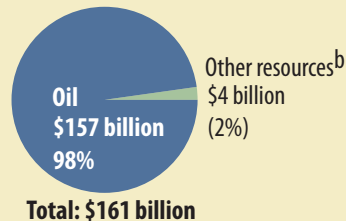
When Alaska became a state, in 1959, the cash economy was very small and depended mostly on federal activities and seasonal salmon fisheries. Oil from Cook Inlet provided a boost in the 1960s. Then, in 1968, oil companies discovered the largest field ever found in North America—the Prudhoe Bay field on Alaska’s North Slope.

North Slope production started in 1977, when the trans-Alaska oil pipeline was completed. Prudhoe Bay was initially estimated to hold 9 billion barrels of recoverable oil, but by 1997 it had produced more than that. At the peak of North Slope production in 1988, Prudhoe Bay and smaller fields, mostly Kuparuk, produced 2 million barrels a day—which at the time was 16% of U.S. and 2% of world production.

Prudhoe Bay was a once-in-a-lifetime discovery. It and other North Slope fields have been an enormous boon to Alaska because (1) the oil was so plentiful; (2) it was cheap to produce; and (3) it was on land the state government owns—meaning the state has collected much larger revenues than it otherwise would have.

So far Alaska has produced 17 billion barrels of oil—which make up 80% of the value of all Alaska resource production since 1959 but 98% of the \$161 billion in resource revenues the state government has collected (Figure 2). Prudhoe Bay has been the big source, but smaller fields on the North Slope and in Cook Inlet also contributed.

Figure 2. State Revenues from Natural Resources^a
(Cumulative Revenues, 1959–2010, in 2010 Dollars)



^a Includes General Fund, Permanent Fund, and Constitutional Budget Reserve revenues.
^b Seafood, mining, and timber taxes and royalties and a portion of state corporate income tax.

THEN AND NOW

Figure 3 shows the difference oil has made. It compares Alaska’s economy, population, and resource production value now and in 1961.

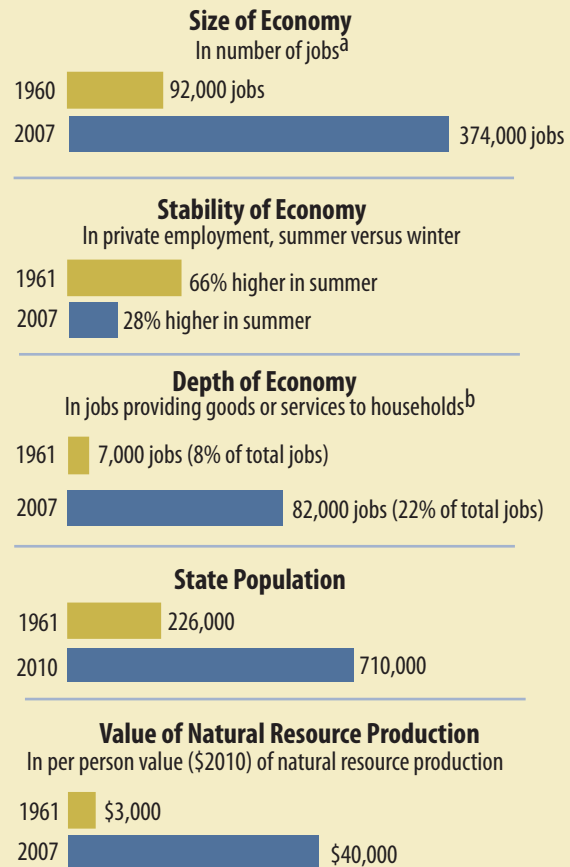
- *Size of economy.* Alaska had 92,000 jobs in 1961. By 2007 it had four times as many—about 374,000. That includes military jobs, wage and salary jobs, and an estimate of self-employed Alaskans.

- *Stability of economy.* In 1961, summer jobs in fishing and construction made up a big share of Alaska’s private jobs, and private employment was 66% higher in the summer. But many jobs created since then are year-round, making Alaska’s economy much more stable.

Still, the fishing industry remains one of Alaska’s largest private employers, and summer jobs in tourism have multiplied since the 1960s. So the economy continues to be more seasonal than economies in other states, with private employment 28% higher in summer. But as Figure 4 shows, tens of thousands of year-round jobs generated by oil production and oil revenues have created much more stability.

- *Depth of economy.* One measure of the depth of an economy is how many local businesses it can support, providing goods and services for residents and other businesses. Alaskans in the 1950s sometimes joked that getting a haircut required flying to Seattle: the thin, seasonal

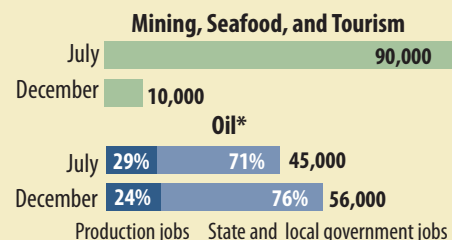
Figure 3. Alaska’s Economy and Population Then and Now



^a Includes active-duty military, nonagricultural wage and salary jobs, and estimated full-time equivalent jobs among the self-employed.

^b Jobs in trade, health care, and other service industries.

Figure 4. Seasonality of Direct Jobs, 2007



Production jobs State and local government jobs
*Includes shares of government jobs supported by oil revenues.

economy just couldn’t support many year-round local businesses. In 1961, there were about 7,000 jobs in such businesses, making up 8% of Alaska’s 90,000 jobs. By 2007, there were about 82,000 jobs in businesses providing goods and services for households, and those jobs made up 22%—nearly one in four—of Alaska’s 374,000 jobs.

- *Size of population.* Alaska’s population is now triple what it was in 1960, up from 226,000 to 710,000 in 2010. Alaska can support a population that large because oil has generated so many jobs.

- *Value of resource production.* Alaska’s economy is based largely on natural resources, so a good measure of the state’s wealth is the value of resource production. In 1961, that value—from seafood, mineral, and timber production—was about \$3,000 per person (in today’s dollars), for Alaska’s 226,000 residents. In 2007, with oil in the resource base, the value of resource production was \$40,000 per person—ten times as much, even though there were three times as many residents.

WITHOUT OIL

On page 1 we introduced the idea of how much smaller Alaska's economy might be without oil. Figure 5 provides more detail on the size of and basis for the economy, with and without oil.

It's impossible to know exactly what would have happened, without oil. But using what seem like reasonable assumptions, we estimated how the number of Alaska jobs in 2007, and the basis for those jobs, might have been different, without oil development.

The basis for the economy—for all the jobs—is new money from outside Alaska. We call the sectors that bring money in the *economic drivers*. How much the economy grows depends on how much money those drivers bring in, and how long the money circulates before leaking out of the economy. Without oil, there would have been a whole lot less money coming in.

In 1960, Alaska had 92,000 jobs; the first pie in Figure 5 shows how many jobs each economic driver supported. The other pies show two views of 2007—the actual number and basis of jobs in 2007, and what might have been, without oil. What's the difference?

- *Without oil, the state would have about half as many jobs as it does today, and the federal government would still support the majority.* The economy would be bigger than in 1960, but structurally similar.
- *The biggest changes without oil would likely have been big growth in tourism, expansion of the seafood and mining industries, and development of the air cargo industry.*
- *Alaska's economy would have remained very seasonal.* Seafood and tourism—the two private industries generating the most jobs, in the absence of oil—are active mostly in the summer.
- *Alaska households and businesses wouldn't have benefited from state government oil revenues—so far, \$157 billion (in today's dollars).*

SPINOFFS OF OIL WEALTH

About a third of Alaska jobs are related to oil production, state and local oil revenues, and individual Alaskans spending their state Permanent Fund dividends.⁴

Beyond those oil-related jobs are more jobs that can be traced to the transformative effects oil has had on the economy, people, and government—the spinoff effects of oil wealth: a bigger, richer, more stable economy; high public spending coupled with low state taxes for households and most non-oil businesses; and a bigger population.

By reducing the costs of doing business and improving economic opportunities, these spinoffs have helped other economic sectors prosper and create about 60,000 jobs, or one in five Alaska jobs.

But as we said earlier, the benefits of oil wealth go far beyond jobs to reach Alaska households, businesses, and communities. Partly these benefits are from oil industry activities, but many are the result of how the state has used its oil revenues. Figure 6 shows what the state did with the \$157 billion (in today's dollars) it has collected so far.

Figure 5. What's the Basis for Alaska Jobs, With and Without Oil?^a

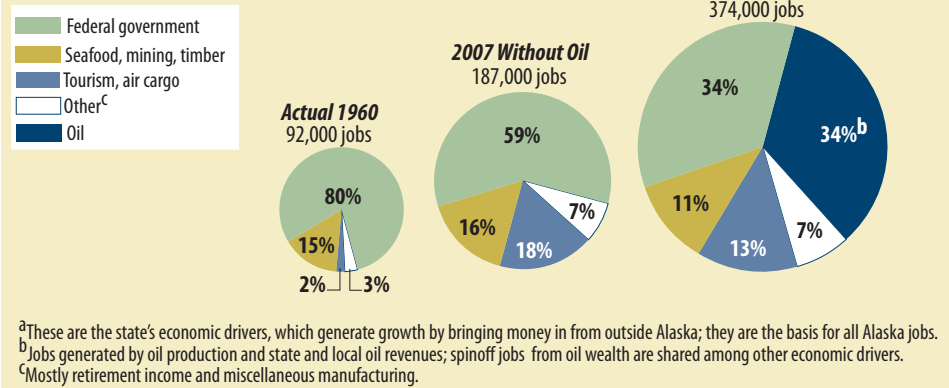
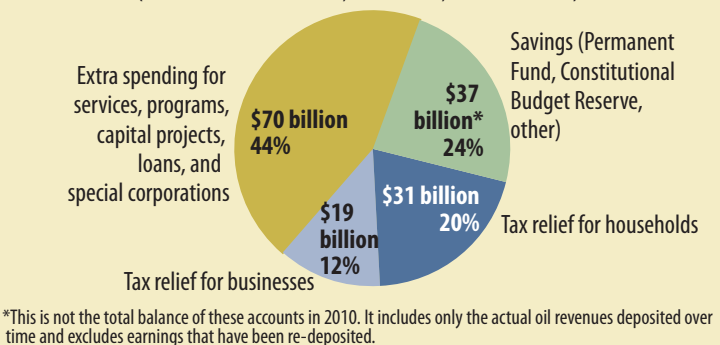


Figure 6. What Did the State Do with \$157 Billion of Oil Money?

(Cumulative Oil Revenues, 1959–2010, in 2010 Dollars)



HOW HAS THE STATE USED ITS OIL MONEY?

• **Extra spending for services and unique programs.** About 44%—\$70 billion—of oil revenues went for, among many other things, new and expanded operating programs; construction of schools, community facilities, and other infrastructure; loans to students, fishermen, and others; and aid to municipalities and schools. Some revenues funded the start-up of special corporations that make home mortgage loans and promote economic development. Most famously, in 1982 the state began sending annual checks (Permanent Fund dividends) to every resident, from the earnings of the Permanent Fund.

• **Tax relief.** Almost a third of oil revenues—\$50 billion—went to keeping state taxes on households and businesses low. Households pay no state income or sales taxes, and most non-oil businesses pay about a third to half the taxes they would pay, if their taxes made up the same share of total revenues as in other states.⁵

• **Savings.** The state has saved about a quarter of its oil revenues, mostly in the Permanent Fund and the Constitutional Budget Reserve. Alaska's constitution prohibits spending the Permanent Fund principal, but the legislature can spend the earnings. The budget reserve makes loans to cover government spending, when there are budget deficits.

Low state taxes and high public spending have made Alaska a much more attractive place to live—as evidenced by the much bigger population. That's especially noticeable among older Alaskans, most of whom used to leave the state when they retired. Now, Alaskans 65 and older are the fastest-growing age group.

OIL AND THE FUTURE

Earlier we imagined what Alaska's economy might have been like, without oil. But oil has been a reality in Alaska for 40 years, and even as production drops, the state has assets it lacked before oil—including better infrastructure, reduced living costs, and savings accounts that have the potential to produce billions of dollars in future earnings.

These legacies of oil help cushion the decline in oil production. But we can't be complacent. The huge North Slope oil discovery was incredibly lucky for Alaska—and we need to recognize that it was luck. We can't just count on more luck as our plan for the future. A better strategy is to take stock of what we have and build on our strengths. Here are some things to keep in mind as we look ahead:

- *Alaska's future prosperity depends on continued oil production.* Other economic drivers besides oil are also critical. The federal government supports one in three Alaska jobs. The seafood and tourism industries create thousands of seasonal jobs that are especially important in rural areas. Mining has a potentially bright future, and the air cargo industry is small but growing. The increasing number of older Alaskans is a less visible but real economic driver; when older residents spend their pensions, they create jobs. But all the likely growth in those drivers can't replace oil.

- *We shouldn't assume high oil prices can shield us forever from the effects of declining production on the state's North Slope lands.* Production is a third what it once was, and it's expected to continue dropping.

- *North Slope natural gas would add to the economic base but can't replace oil.* On an energy-equivalent basis, the current market value of oil is more than twice that of gas. It's also far more expensive to move gas to market. So the state's gas tax base, which is the market value minus transportation costs—the wellhead value—would be only a small fraction of the current wellhead value of oil production (Figure 7).

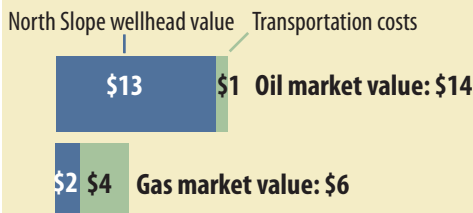
- *There's still a lot of oil on the North Slope and offshore.* We don't know just how much, but enough to support a thriving industry for generations (Figure 8). In the near-term, oil will come mainly from producing fields, which may have about 5 billion barrels of conventional oil remaining. There are other known but not yet producing fields on state land, and it's likely more will be found as exploration continues. Production from those fields will depend on economics. The North Slope also has billions of barrels of viscous and heavy oil, which is thick and expensive to produce. Very little of that is currently economic to produce, but the vast size of the reserves represents a tremendous opportunity. If the technological challenges of producing that oil can be overcome, it would generate a lot of jobs—but not the same level of state revenues as the older fields.

Beyond state lands, federal lands are currently estimated to have 33 billions barrels of technically recoverable oil, in both on-shore and offshore areas. How much of that oil is actually produced will depend on geology, economics, technology—and politics.

WHAT'S THE NEXT STEP?

Given how important oil is and will continue to be, Alaskans should focus on developing a strategy that will provide the greatest long-term benefits from future oil production for the state, the economy, and Alaskans. What should we consider in such a strategy?

Figure 7. Value of Equivalent Energy from Oil and Natural Gas*
(1 million BTUs, or about one-sixth of a barrel of oil)



*Assumes oil at \$80 per barrel and 5.6 million BTU per barrel; price per thousand cubic feet of gas

Figure 8. Potential North Slope Oil Reserves (In Barrels)



- *Don't expect a home run: have realistic expectations about the benefits of future oil production,* compared with the enormous good fortune that came our way with past North Slope oil development. We'll have to work harder to craft policies that benefit Alaska.

- *Determine where the "sweet spot" lies: the level of oil taxation that promotes maximum long-term benefits for the state—in oil production, employment, and state revenues.* A first step would be maintaining an inventory of potential oil investments and assessing their sensitivity to different tax rates.

- *Resist the temptation to "do something"—that is, to use the state's oil wealth for economic diversification projects.* We've tried that in the past with little success. As oil revenues become tighter, the urge to spend them in attempts to diversify will increase—and put us at risk of making big, wasteful mistakes. A better bet is to conserve our oil wealth and benefit from its earning power.

ENDNOTES

1. See "What Drives the Alaska Economy?" *Understanding Alaska* Research Summary No.13, December 2008, by Scott Goldsmith. Institute of Social and Economic Research, University of Alaska Anchorage. Available at www.iser.uaa.alaska.edu.

2. Most Alaska businesses are not set up as corporations, but those that are corporations—generally the larger businesses—are subject to state corporate income taxes.

3. Total Alaska employment as we define it here is the sum of wage and salary jobs, active-duty military personnel, and an estimate of full-time equivalent jobs among self-employed Alaskans.

4. See note 1.

5. Taxes at such rates would shift a significant burden onto Alaska businesses, because in the absence of oil, the biggest economic driver is the federal government, which is exempt from state taxes.

Scott Goldsmith is a professor of economics at ISER who has studied Alaska's economy for 35 years. To see more of his work on the role of oil in the economy, or the entire *Investing for Alaska's Future* series, go to: www.iser.uaa.alaska.edu/Home/ResearchAreas/invest.html

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